

Puget Sound Gateway Program

SR 167 and SR 509 Completion Projects

Joint Executive Committee
January 11, 2017

CRAIG J. STONE, PE

GATEWAY PROGRAM ADMINISTRATOR

Agenda

- Welcome and Introductions
- Today's Objectives
- Review Project Scenarios and Traffic Analysis
- Updated Funding and Phasing Review
- Preliminary Preferred Scenario Recommendation
- Discussion
- Conclusion and Next Steps

Meeting Objectives

- Recommend preliminary preferred scenario to take into environmental review
- Provide update on steering committee progress

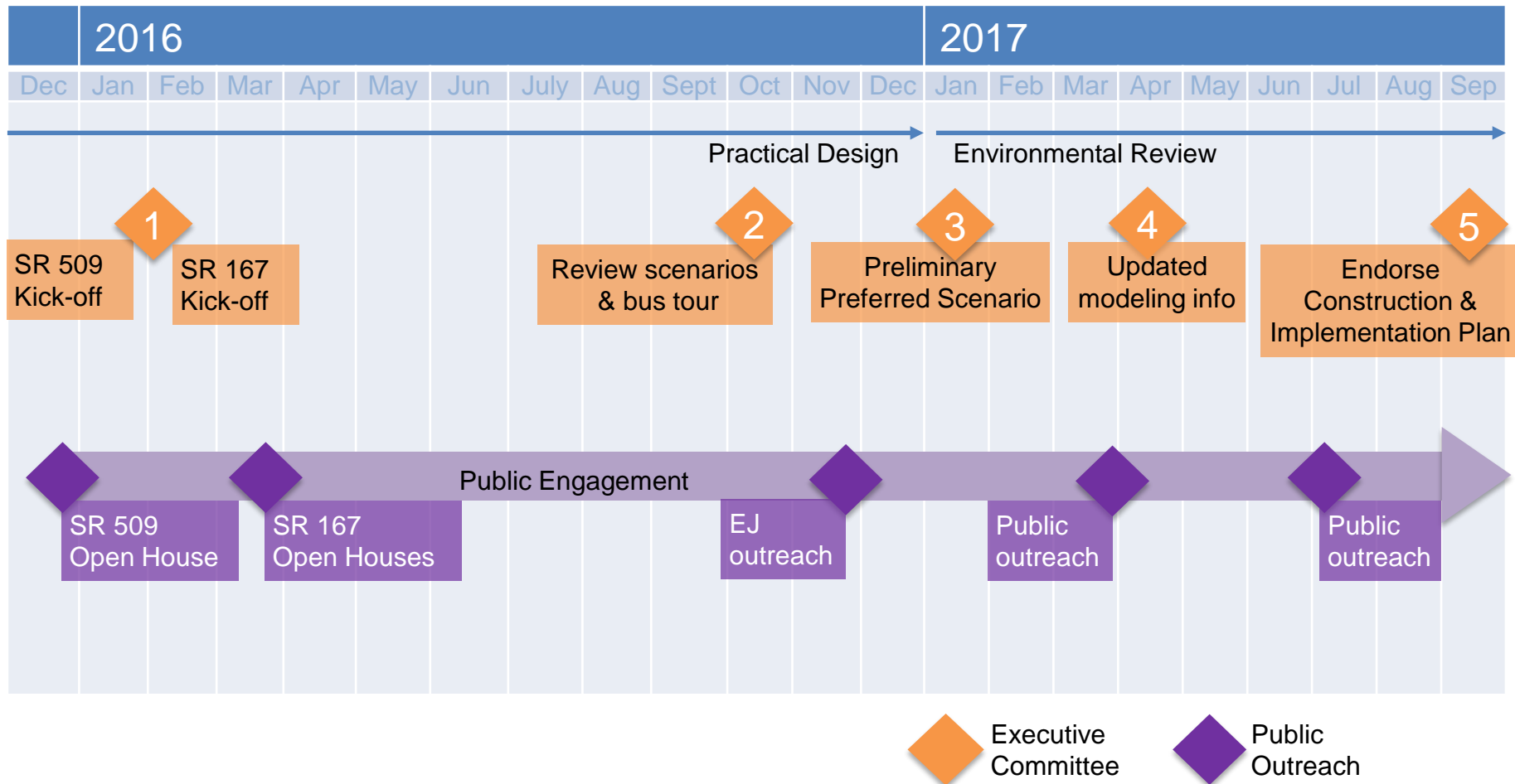
Legislative Direction

*In making budget allocations to the Puget Sound Gateway project, the department shall **implement the project's construction as a single corridor investment.***

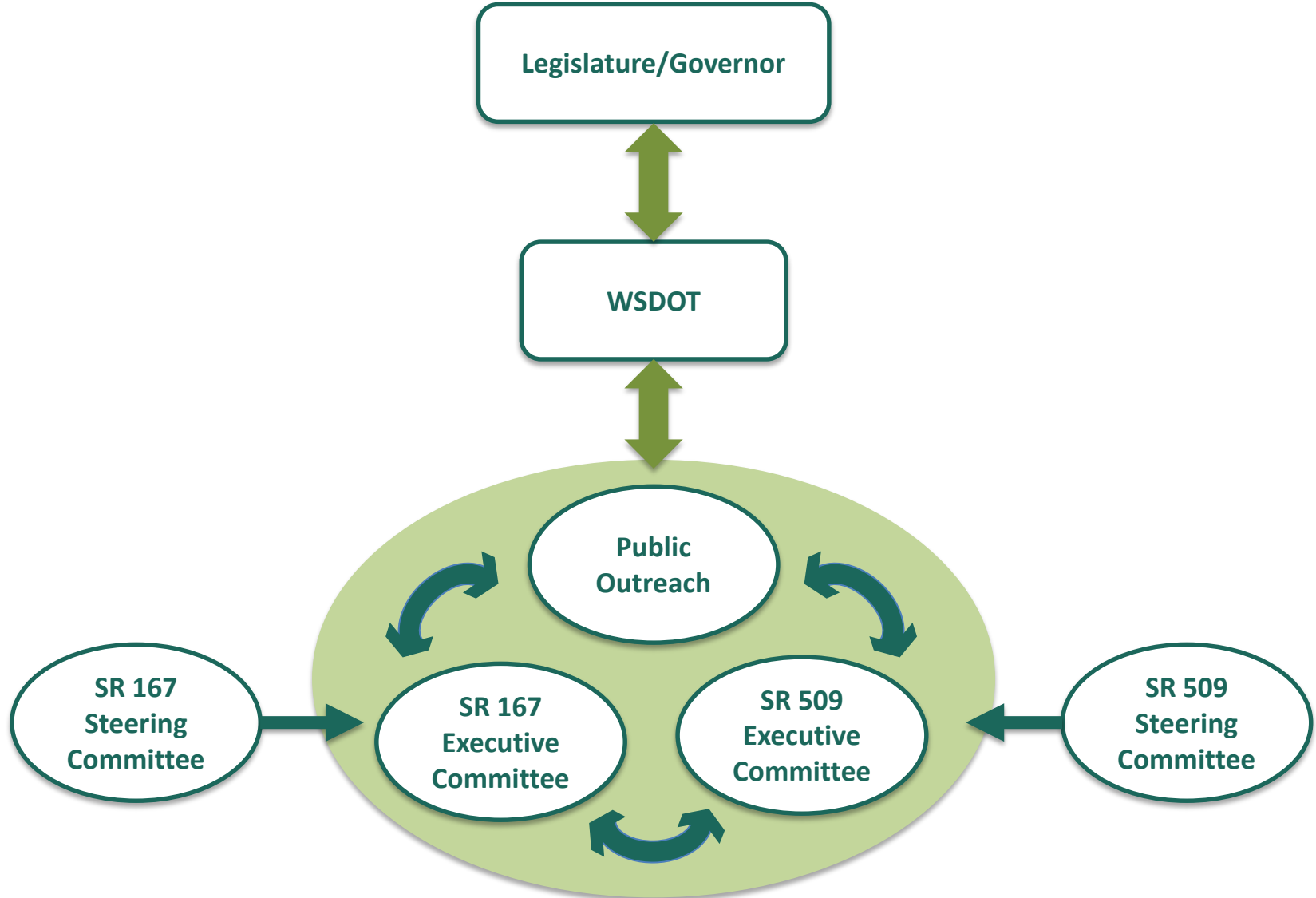
*The department shall develop a coordinated corridor **Construction and Implementation Plan for SR 167 and SR 509** in collaboration with affected stakeholders.*

*Specific funding allocations must be based on where and when specific project segments are ready for construction to move forward and investments can be best optimized for timely project completion. Emphasis must be placed on **avoiding gaps in fund expenditures for either project.***

Program Schedule to Endorse Construction and Implementation Plan



Puget Sound Gateway Process



Gateway Executive Committee Charter

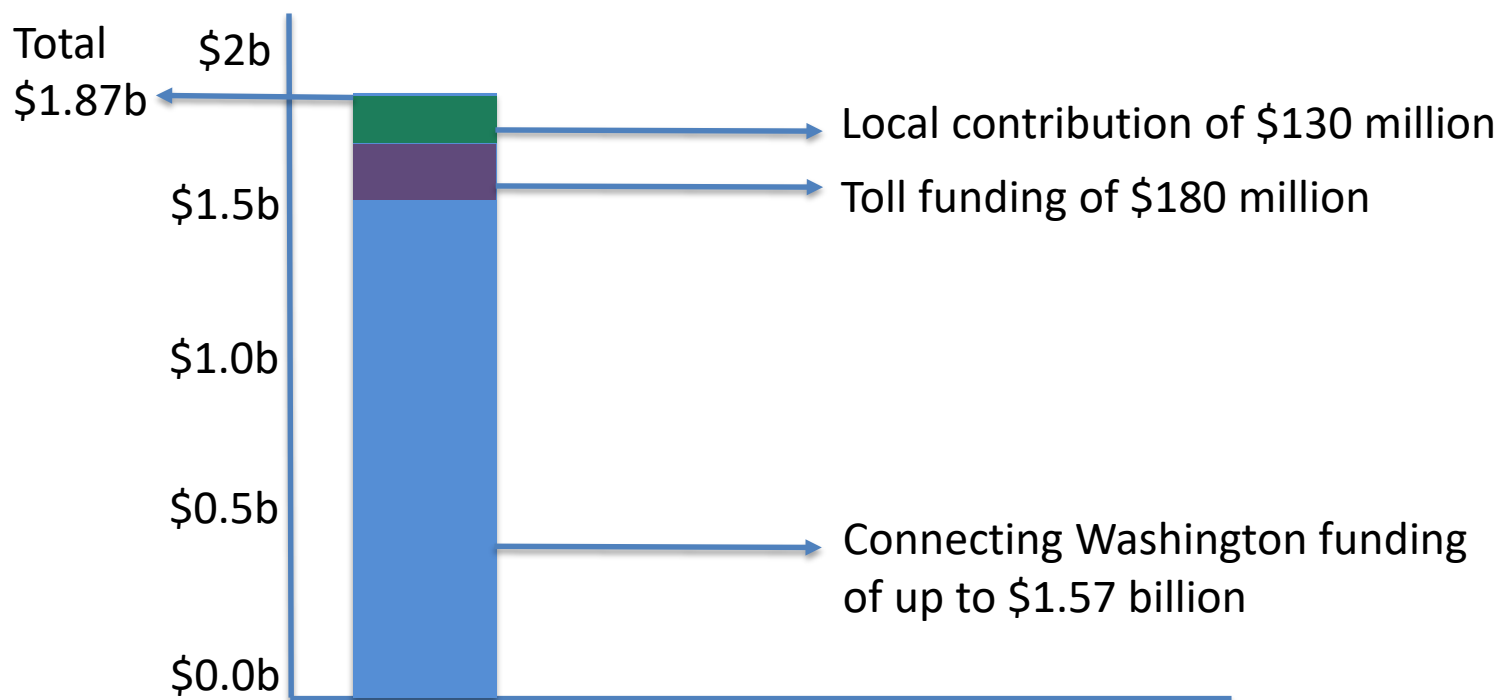
- Provide WSDOT with strategic advice on key decisions to implement the SR 167 and SR 509 projects within the Puget Sound Gateway Program framework
- Review and provide feedback on prioritizing needs and refinements to SR 167 and SR 509 project design concepts
- Review and provide feedback on program construction phasing
- Review and provide feedback on program funding strategies
- Collaboratively engage among the joint Executive Committee members to build consensus with affected stakeholders on a coordinated Gateway program funding, construction and implementation plan
- Assist in building/maintaining local and regional consensus for the Gateway program

Puget Sound Gateway Program Guiding Principles

1. Support regional mobility to provide efficient movement of **freight** and people
2. Improve local, regional, state and national economic vitality
3. Provide a high level of safety
4. Support local and regional comprehensive land use plans
5. Minimize environmental impacts and seek opportunities for meaningful improvements
6. Create solutions that are equitable, **fiscally responsible**, and allow for implementation over time
7. Support **thoughtful community engagement and transparency**

Puget Sound Gateway Program

Total funding is \$1.87 billion; this amount assumes \$310 million local match and tolling funding.



Practical Design

- **WSDOT Executive Order 1096:**

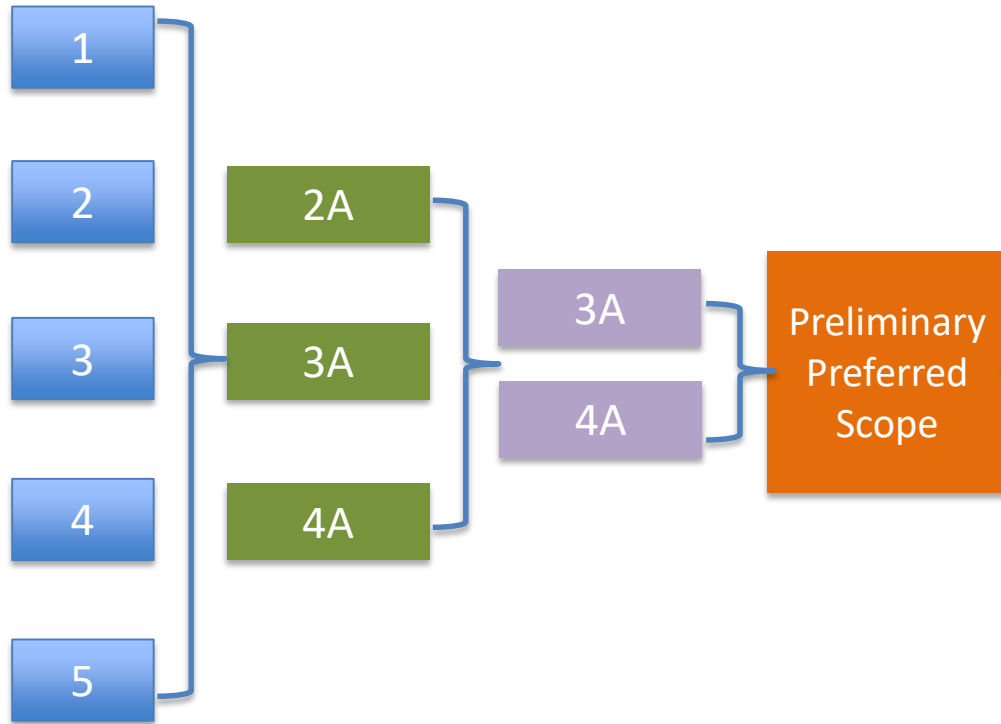
- *WSDOT will design transportation infrastructure related solutions that are targeted to **address the essential needs of a project, not every need**. In doing so, designs are developed with criteria that achieve stated performance for the least cost...*

- **ESHB 2012:**

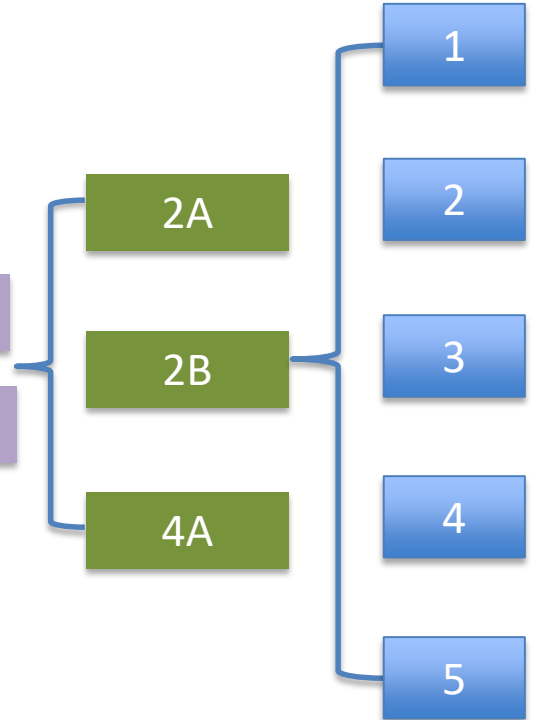
- *(1)(a) For projects identified as Connecting Washington projects... The legislature encourages the department to continue to institutionalize innovation and collaboration in design and project delivery with an eye toward the most efficient use of resources. **In doing so, the legislature expects that, for some projects, costs will be reduced during the project design phase due to the application of practical design***

Scenario Refinement Process

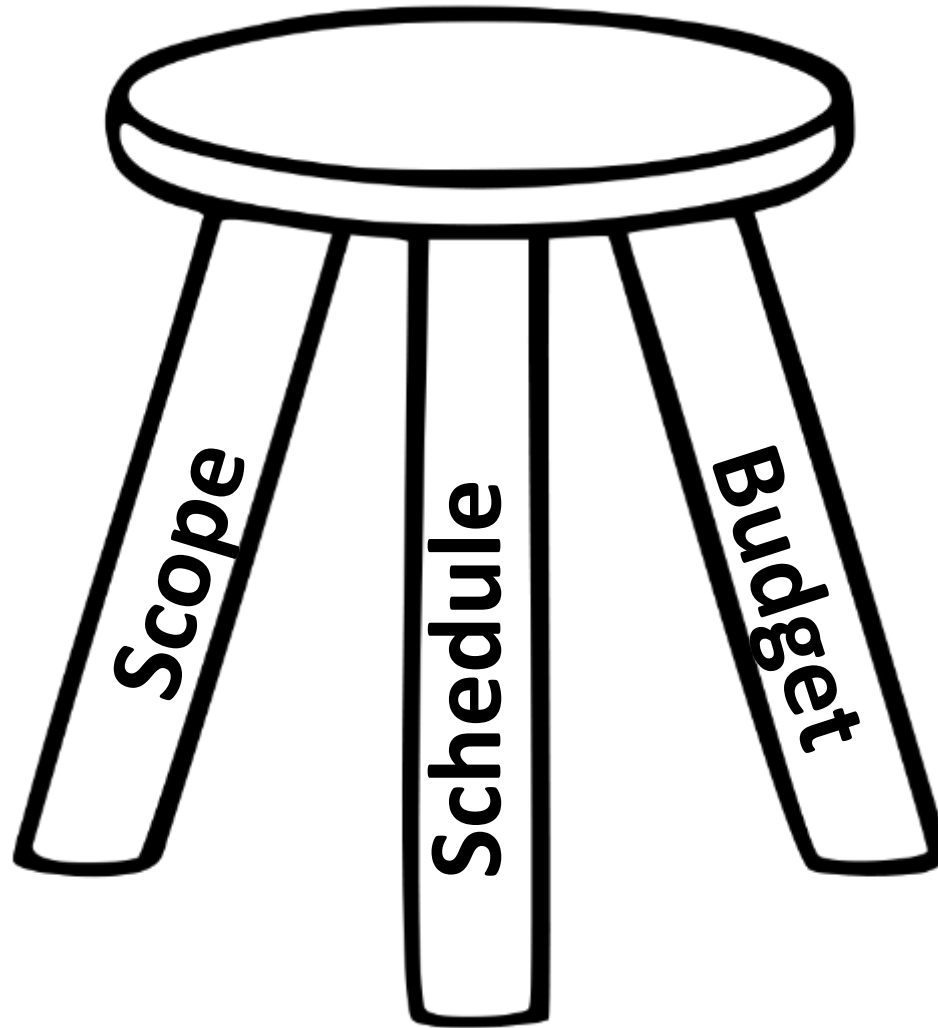
SR 509 Process



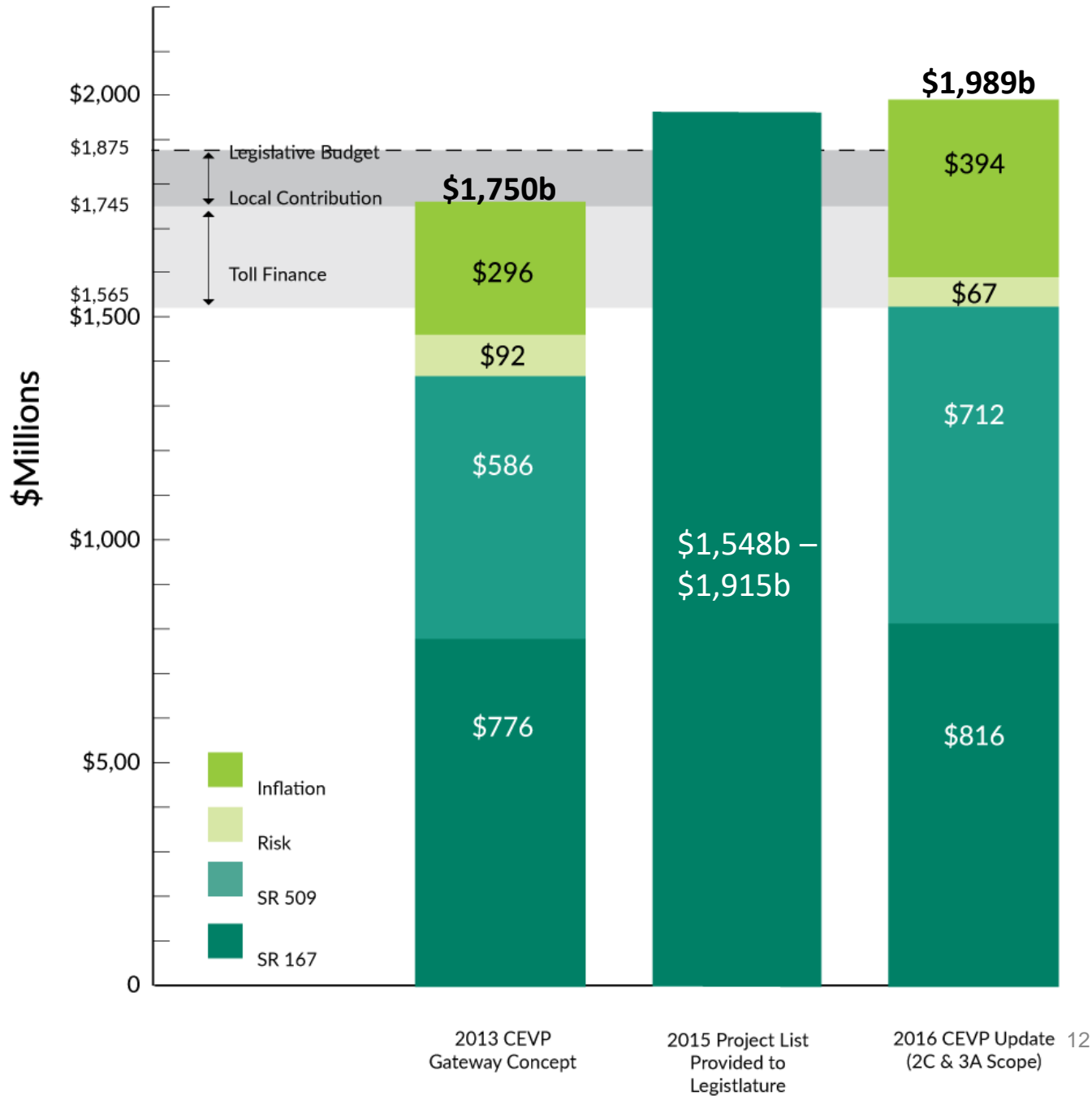
SR 167 Process



Finding the Balance for the Construction and Implementation Plan



Cost Review



SR 167 Scenarios & Traffic Analysis

Scenario 2C: Full Connectivity at I-5 with Split Diamond Interchange at Valley Avenue and Meridian Avenue



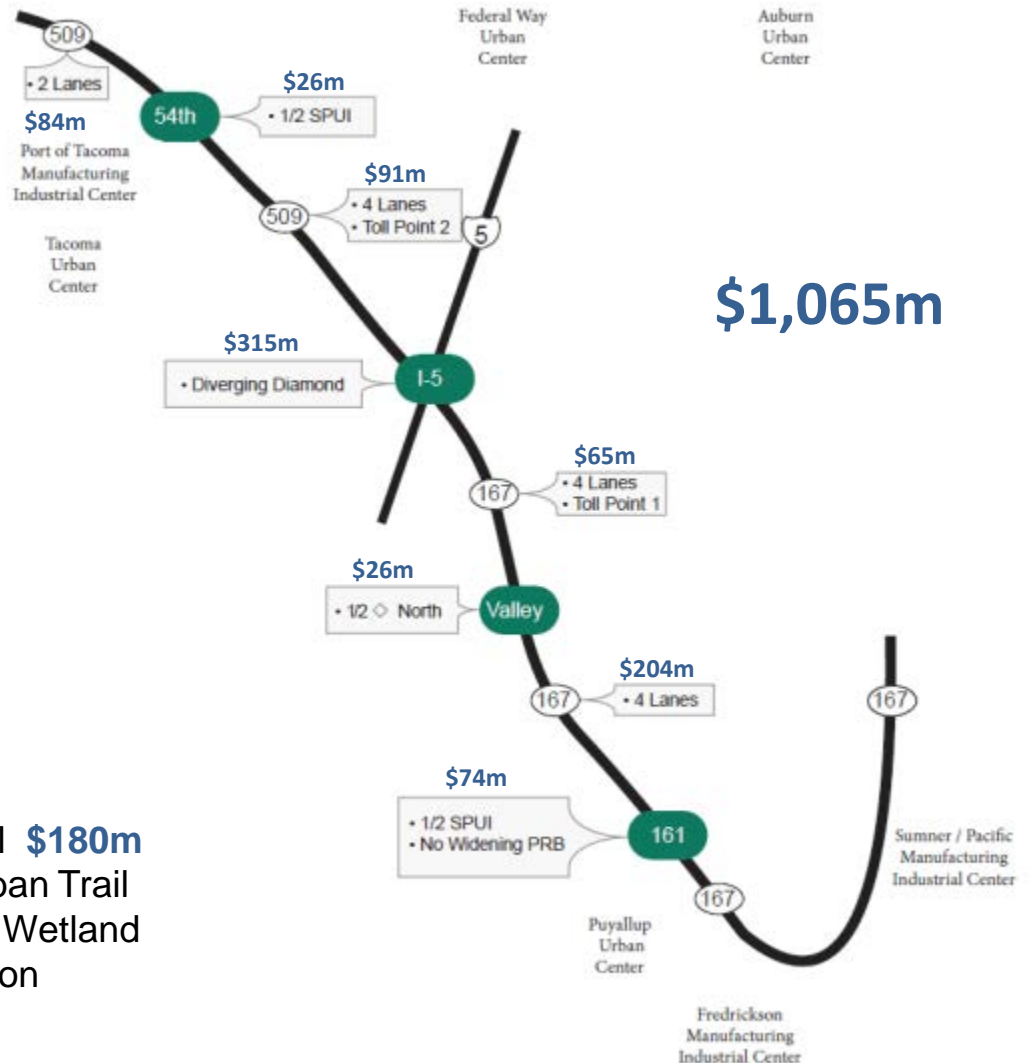
SR 167: Scenario 2C

Highlighted features:

- ½ SPUI at 54th Ave interchange
- Service level Diverging Diamond interchange at I-5
- ½ Diamond interchange at Valley Avenue
- ½ SPUI interchange at Meridian Avenue

Other Items Total **\$180m**

- Interurban Trail
- RRP & Wetland Mitigation



Scenario 4A: Moderate Connectivity at I-5 with Full Connectivity at Meridian Avenue



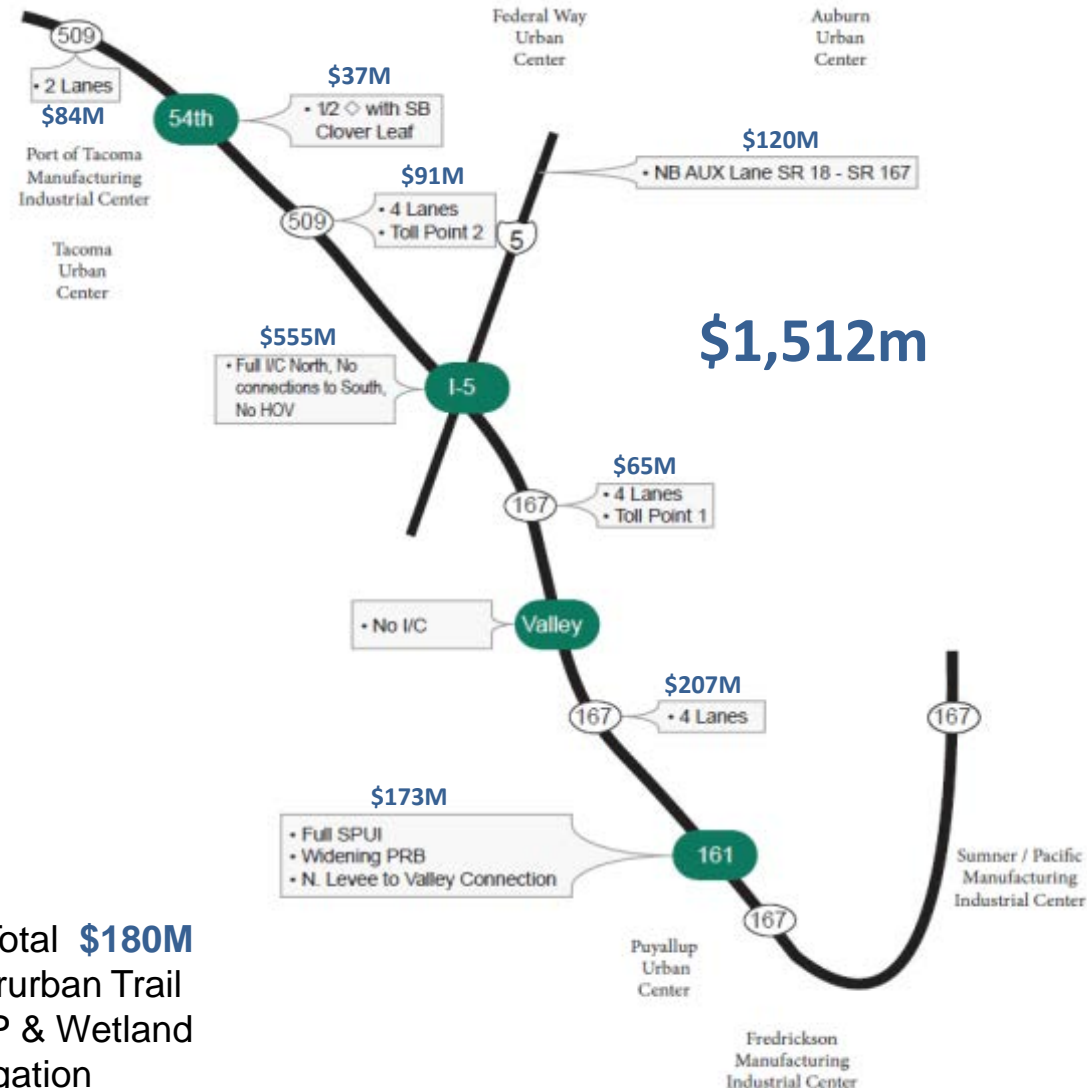
SR 167: Scenario 4A

Highlighted features:

- ½ Diamond with SB cloverleaf at 54th Ave interchange
- System level interchange to/from the north at I-5
- NB I-5 auxiliary lane
- No interchange at Valley Avenue
- Full SPUI at Meridian interchange
- Widen NB Puyallup River Bridge
- N. Levee to Valley Connector

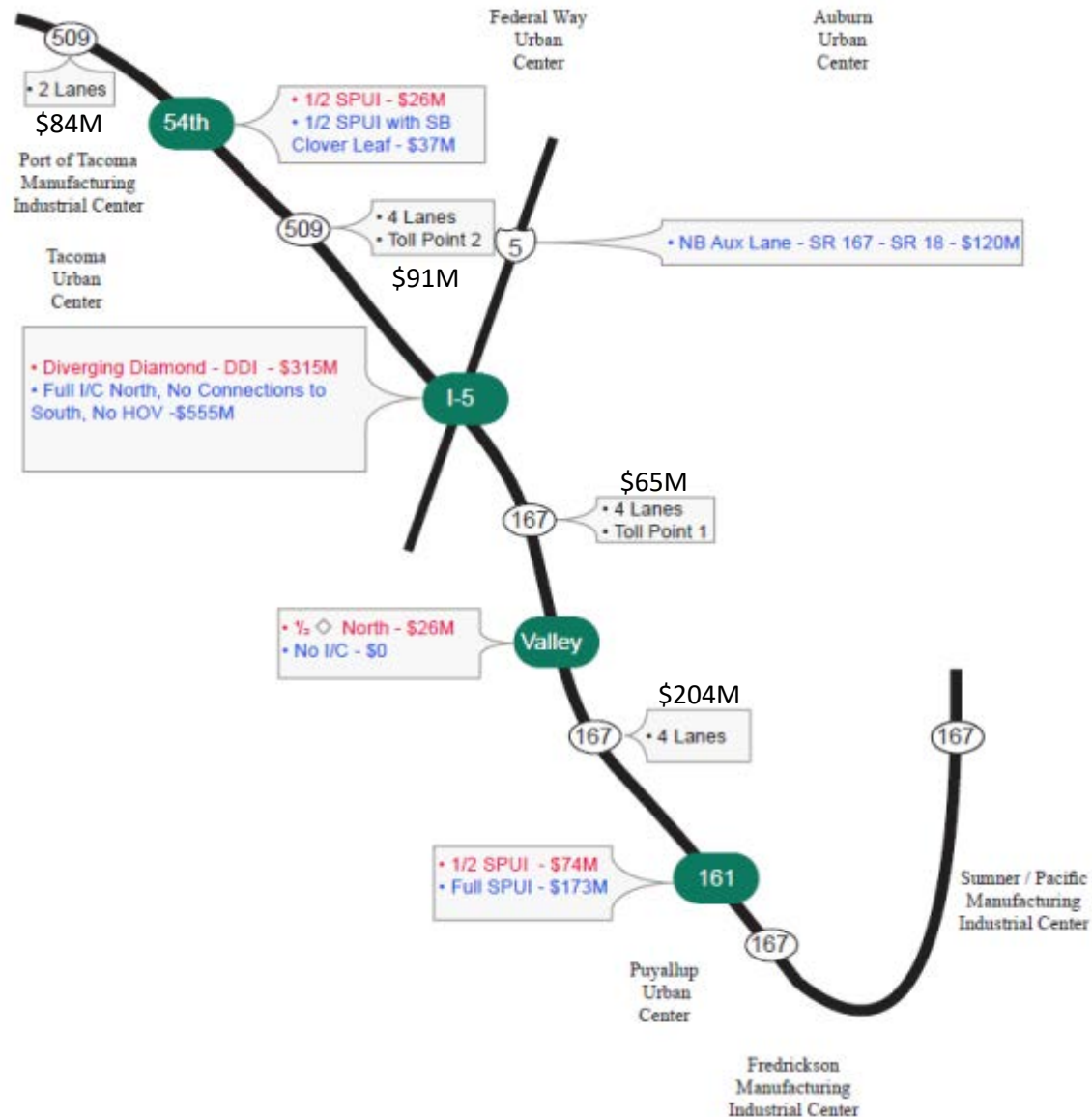
Other Items Total **\$180M**

- Interurban Trail
- RRP & Wetland Mitigation



Scenario 2C/4A Comparison

- Legend:
- Scenario 2C
 - Scenario 4A
 - Shared Component



PM Peak Hour Travel Times
Model-Estimated | Forecast Year 2025



- ## I-5 Travel Times

2025

2-9 Through Study Area on I-5

2045

PM Peak Projected Travel Times for Selected South End Routes: 2025

8-7 PoT to Puyallup

Via Current		No Build	2C/3A	4A/4A
	EB	21	20	21
	WB	23	19	19

Via Build		No Build	2C/3A	4A/4A
	EB	21	14	13
	WB	23	14	12

% Travel Time Savings:

	<u>2C/3A</u>	<u>4A/4A</u>
• EB	33%	38%
• WB	39%	48%

8-6 PoT to Sumner/Pacific MIC

Via Current		No Build	2C/3A	4A/4A
	EB	25	24	24
	WB	22	22	22

Via Build		No Build	2C/3A	4A/4A
	EB	25	16	16
	WB	22	16	16

% Travel Time Savings:

	<u>2C/3A</u>	<u>4A/4A</u>
• EB	36%	36%
• WB	27%	27%

PM Peak Projected Travel Times for Selected South End Routes: 2045

8-7 PoT to Puyallup

Via Current		No Build	2C/3A	4A/4A
	EB	25	23	22
	WB	27	23	23

Via Build		No Build	2C/3A	4A/4A
	EB	25	15	14
	WB	27	16	14

% Travel Time Savings:

	<u>2C/3A</u>	<u>4A/4A</u>
• EB	40%	44%
• WB	40%	48%

8-6 PoT to Sumner/Pacific MIC

Via Current		No Build	2C/3A	4A/4A
	EB	25	25	25
	WB	29	23	23

Via Build		No Build	2C/3A	4A/4A
	EB	25	17	17
	WB	29	18	18


















































% Travel Time Savings:

	<u>2C/3A</u>	<u>4A/4A</u>
• EB	32%	32%
• WB	38%	38%

SR 167 Performance Evaluation Results

Scenario Comparison Table - SR 167 Completion Project

Date: 1/11/17

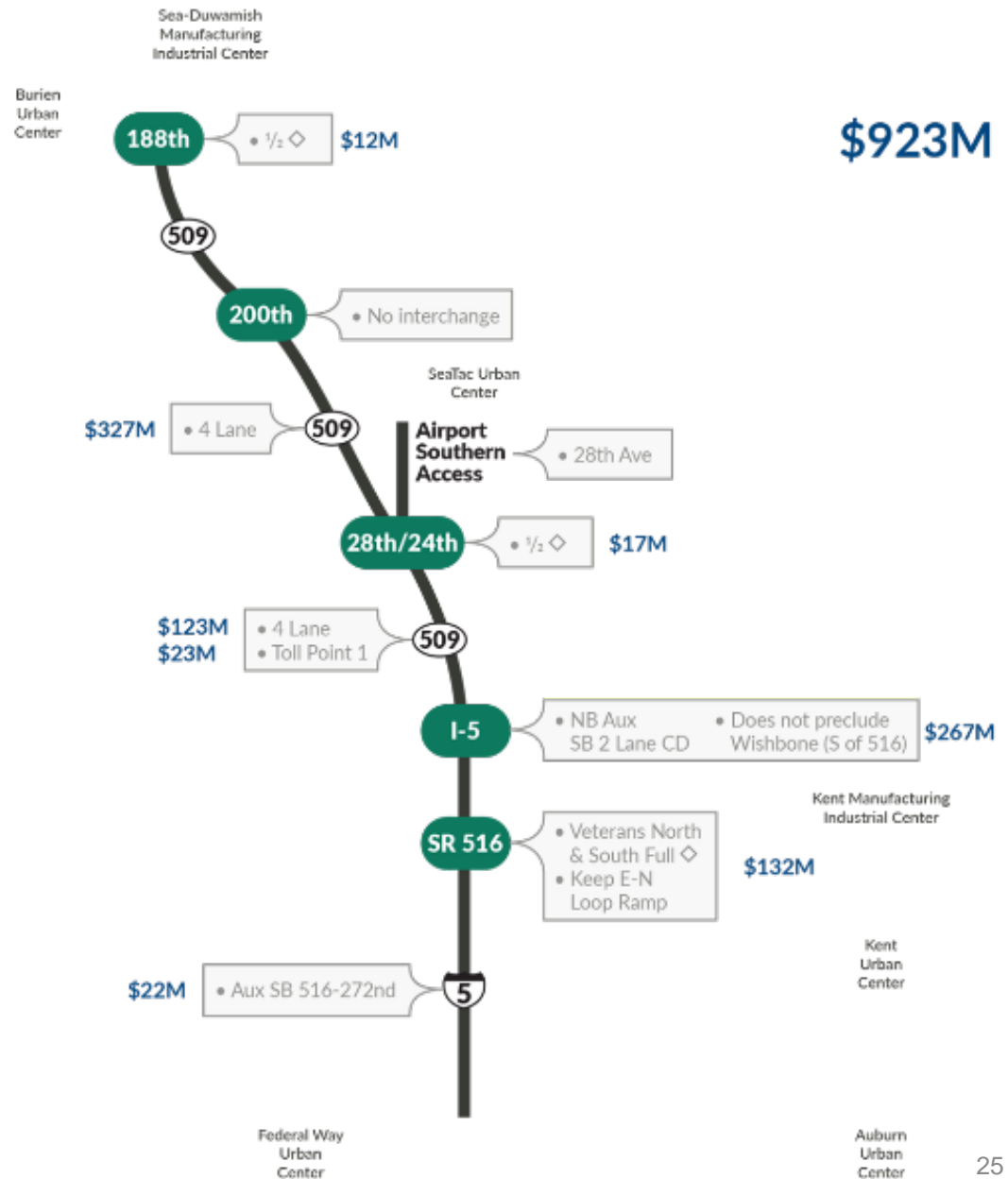
Performance Category 	Essential Performance Metrics													Contextual Performance Metrics								Cost	
	Mobility											Economic Vitality		Safety	Safety	Active Mobility			Env't	Other			
Mode 	Auto / Freight	HOV / Bus	Auto / Freight	HOV/Bus	Auto / Freight	HOV / Bus	Auto / Freight	HOV / Bus	Auto / Freight	HOV / Bus		Auto / Freight	HOV / Bus		Ped	Bike	Ped	Bike					
Performance METRIC  SCENARIO	SR 167 Performance Maintain or Improve SR 167 Operations between SR 161 and I-5		SR 509 Spur Performance Maintain or Improve SR 509 Spur Operations between I-5 and SR 509		I-5 Performance Maintain or Improve I-5 Operations between I-705 and SR 18		Travel Time Reduce travel time between Urban Centers, and Manufacturing Industrial Centers in Pierce & S. King County		Travel Time Reliability Improve travel time reliability between Urban Centers, and Manufacturing Industrial Centers in Pierce & S. King County		Complete Freeway Network / Redundancy Achieved		Delay Reduce hours of delay in subarea network	Economic Benefit Improve economic vitality	Local and Regional Comprehensive Plan Support local and regional comprehensive land use planning and development	Safety # of Serious Injury and Fatal Crashes (I-5 & SR 167 & SR 509)	Safety # of Serious Injury and fatal crashes on local arterials	Number and location of Crossings Reduce Pedestrian vehicle exposure by reducing traffic volumes	Continuity and Consistency of Pedestrian facility Improve Pedestrian & Bicycle continuity along new corridor	Sensitive Area Impact Reduce area of impact to sensitive areas	Forward Compatibility	Right of Way Impact Reduce Right of Way Impact	Compatibility With Transit Long Range Plans
No Build																							
Scenario 2C: Full Connectivity at I-5 with Split Diamond at Valley and Meridian																							
Scenario 4A: Moderate Connectivity at I-5 w/Full Meridian Connectivity																							

SR 509 Scenarios & Traffic Analysis

Scenario 3A



SR 509: Scenario 3A

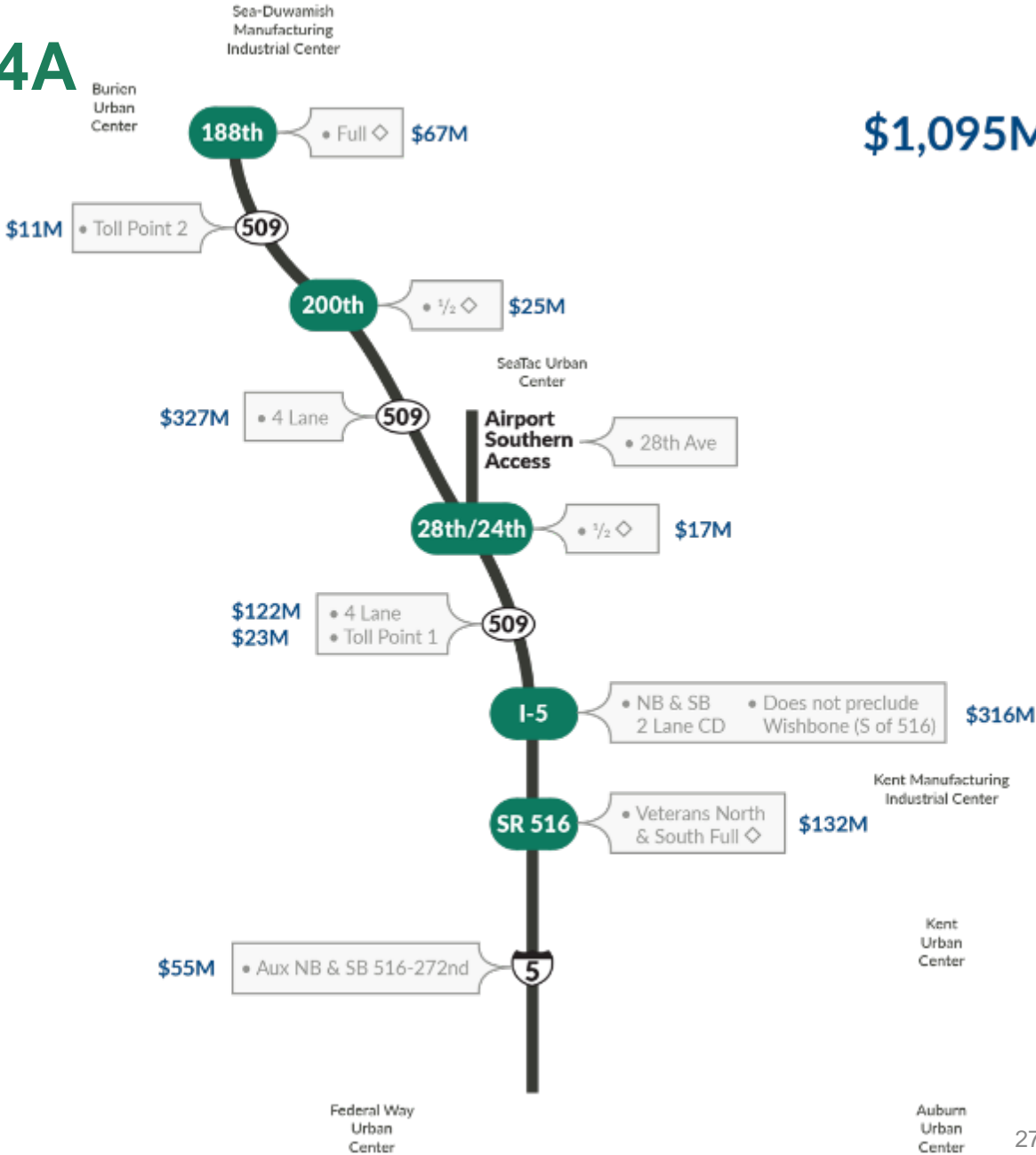


Scenario 4A



SR 509: Scenario 4A

\$1,095M



Scenario 3A/4A

- Legend:
- Scenario 3A
 - Scenario 4A
 - Shared Component

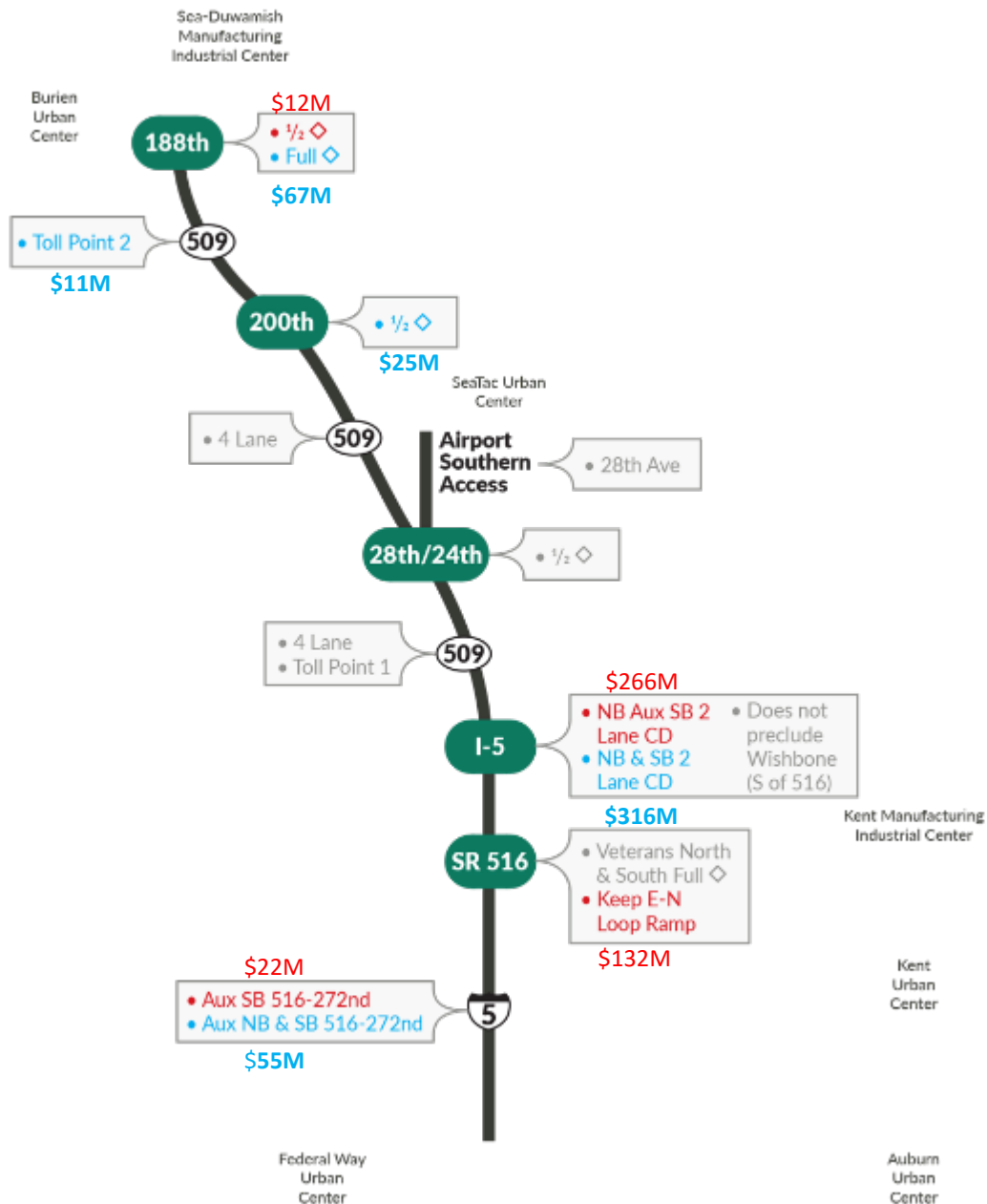


Figure 1 displays 16 heatmaps arranged in a 4x4 grid, illustrating the relationship between the number of nodes (N) and the number of edges (E) for different network types. The rows represent network types, and the columns represent network sizes ($N=10, 20, 30, 40$). Each heatmap shows the relationship between N and E , with values ranging from 0 to 1.0. The heatmaps are color-coded: red for 1, orange for 2, yellow for 3, green for 4, blue for 5, purple for 6, brown for 7, and black for 8.

- Row 1: Connected Network**
 - $N=10$: E ranges from 9 to 45.
 - $N=20$: E ranges from 19 to 91.
 - $N=30$: E ranges from 29 to 136.
 - $N=40$: E ranges from 39 to 181.
- Row 2: Connected Network with a Hub**
 - $N=10$: E ranges from 10 to 46.
 - $N=20$: E ranges from 20 to 92.
 - $N=30$: E ranges from 30 to 138.
 - $N=40$: E ranges from 40 to 183.
- Row 3: Connected Network with a Hub and a Bridge**
 - $N=10$: E ranges from 11 to 47.
 - $N=20$: E ranges from 21 to 93.
 - $N=30$: E ranges from 31 to 139.
 - $N=40$: E ranges from 41 to 184.
- Row 4: Connected Network with a Hub and a Bridge and a Loop**
 - $N=10$: E ranges from 12 to 48.
 - $N=20$: E ranges from 22 to 94.
 - $N=30$: E ranges from 32 to 140.
 - $N=40$: E ranges from 42 to 185.



- 

PM Peak Projected Travel Times for Selected North End Routes: 2025

1-4 Duwamish MIC to Kent MIC

Via Current		No Build	2C/3A	4A/4A
	NB	23	24	24
Via Current	SB	25	25	25

Via Build		No Build	2C/3A	4A/4A
	NB	23	19	19
Via Build	SB	25	21	21

% Travel Time Savings:

		<u>2C/3A</u>	<u>4A/4A</u>
•	NB	17%	17%
•	SB	16%	16%

3-7 SeaTac to Puyallup

Via Current		No Build	2C/3A	4A/4A
	NB	35	34	34
Via Current	SB	42	39	41

Via Build		No Build	2C/3A	4A/4A
	NB	35	27	24
Via Build	SB	42	31	30

% Travel Time Savings:

		<u>2C/3A</u>	<u>4A/4A</u>
•	NB	23%	31%
•	SB	26%	29%

PM Peak Projected Travel Times for Selected North End Routes: 2025

1-4 Duwamish MIC to Kent MIC

Via Current		No Build	2C/3A	4A/4A
	NB	25	24	24
	SB	30	28	27

Via Build		No Build	2C/3A	4A/4A
	NB	25	20	20
	SB	30	22	22

% Travel Time Savings:

		<u>2C/3A</u>	<u>4A/4A</u>
• NB	20%	20%	
• SB	27%	27%	

3-7 SeaTac to Puyallup

Via Current		No Build	2C/3A	4A/4A
	NB	38	35	36
	SB	45	41	41

Via Build		No Build	2C/3A	4A/4A
	NB	38	26	24
	SB	45	30	29

% Travel Time Savings:

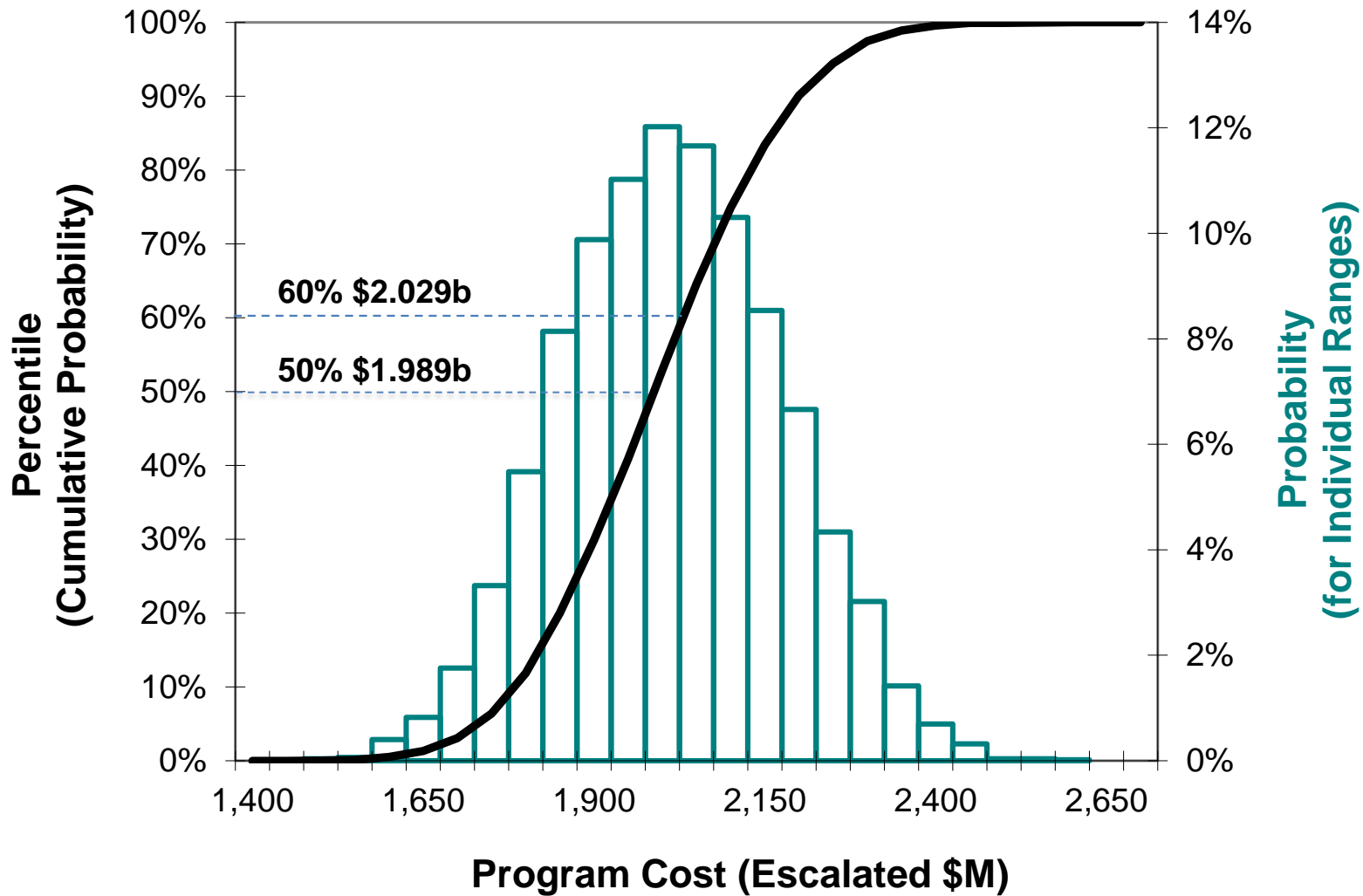
		<u>2C/3A</u>	<u>4A/4A</u>
• NB	32%	37%	
• SB	33%	36%	

SR 509 Performance Evaluation Results

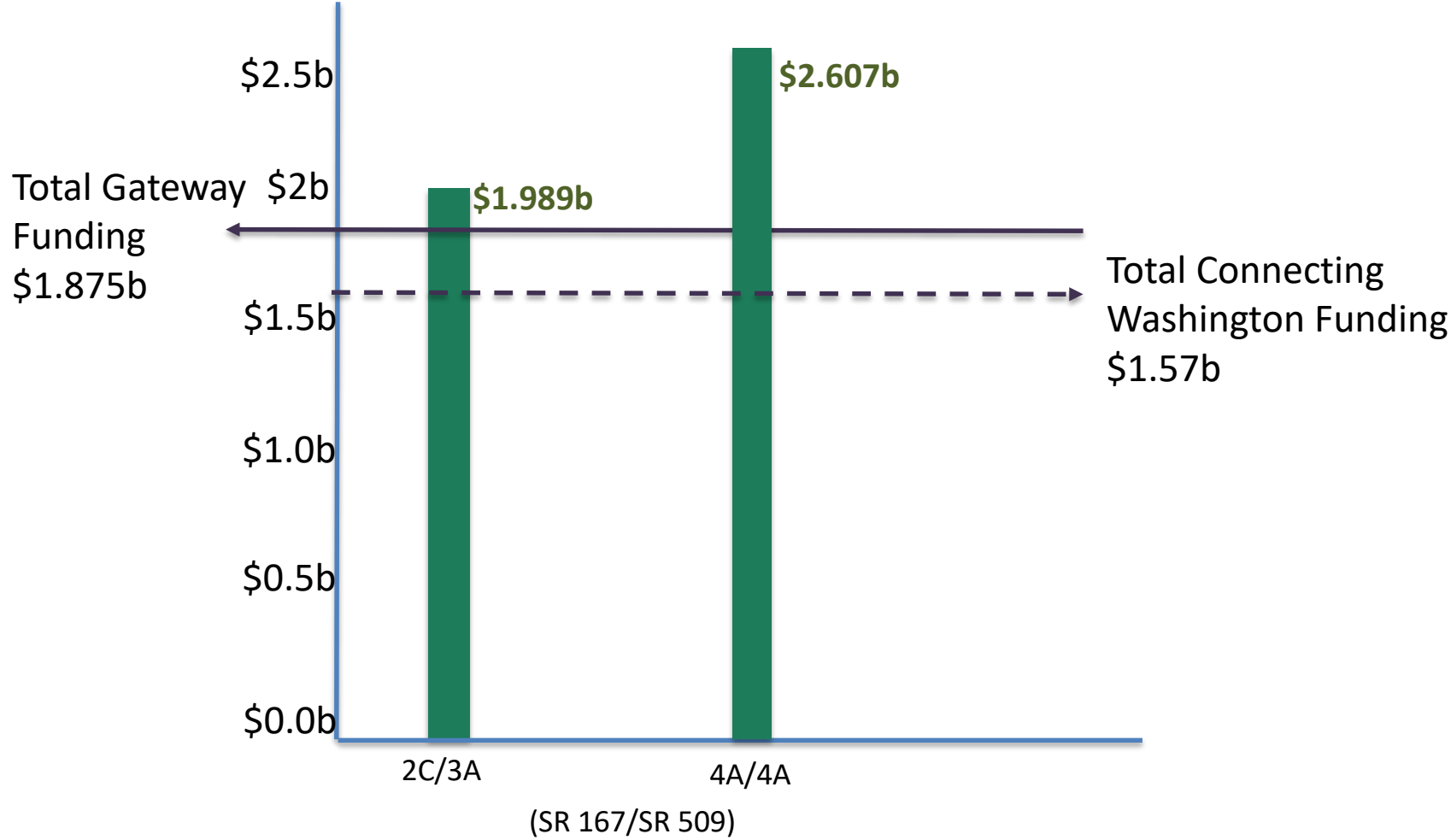
Performance Category ➡	Essential Performance Metrics										Contextual Performance Metrics								Cost
	Mobility								Economic Vitality	Safety	Safety	Mobility			Env't	Other			
Mode ➡	Auto / Freight	HOV / BUS	Freight / Auto / Transit	Freight / Auto / Transit	Freight / Auto / Transit	Freight / Auto / Transit	Freight / Auto / Transit	Freight / Auto / Transit					Ped	Ped & Bike					
Performance METRIC ➡	SCENARIO																		
	SR 509 Performance Improve throughput and lower levels of congestion on new SR 509 facility		I-5 Performance Maintain or Improve I-5 Operations between S. Spokane St and SR18	Delay Reduce hours of delay in project subarea network	Airport - Travel Time Reduce travel time between SeaTac Airport and the area south of S. 200th St.	Airport - Travel Time Reliability Improve travel time reliability between SeaTac Airport and the area south of S. 200th St.	Centers - Travel Time Reduce travel time between Urban Centers, Manufacturing Industrial Centers in South King County	Centers - Travel Time Reliability Improve travel time reliability between Urban Centers, Manufacturing Industrial Centers in South King County	Economic Benefit Improve economic vitality	Local and Regional Comprehensive Plan Support local and regional comprehensive land use planning and development	Safety # of Serious Injury and Fatal Crashes (I-5 & SR 509)								
No Build																			
Scenario 3A - Moderate Connectivity																			
Scenario 4A - Full Connectivity																			
											PRELIMINARY COST REVIEW								
																	\$ 923 M		
																	\$ 1055 M		

Updated Cost Estimates (CEVP)

Program Cost Results: 2C/3A



CEVP Cost Estimates



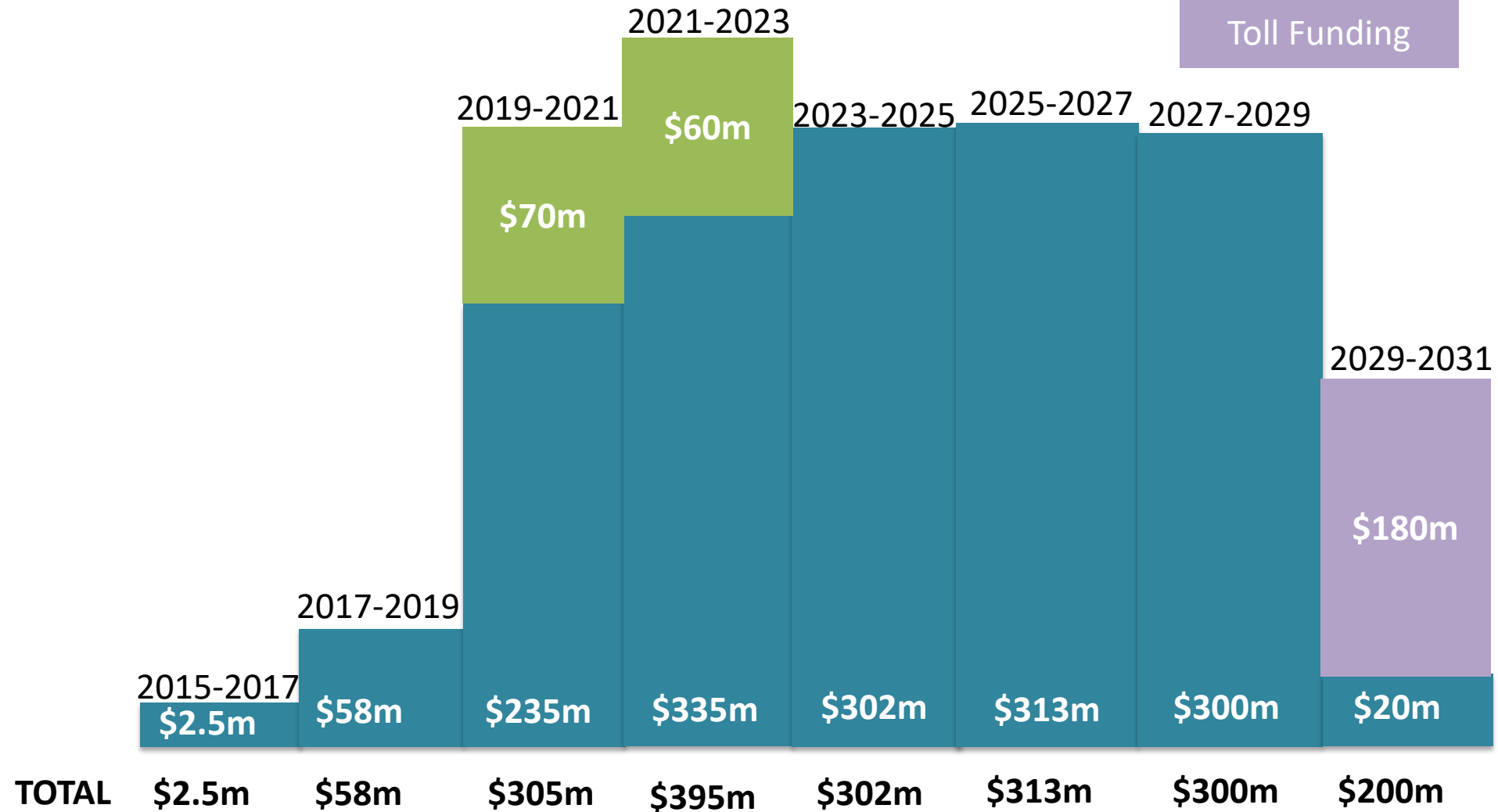
Puget Sound Gateway Funding

as enacted by 2015 Legislature

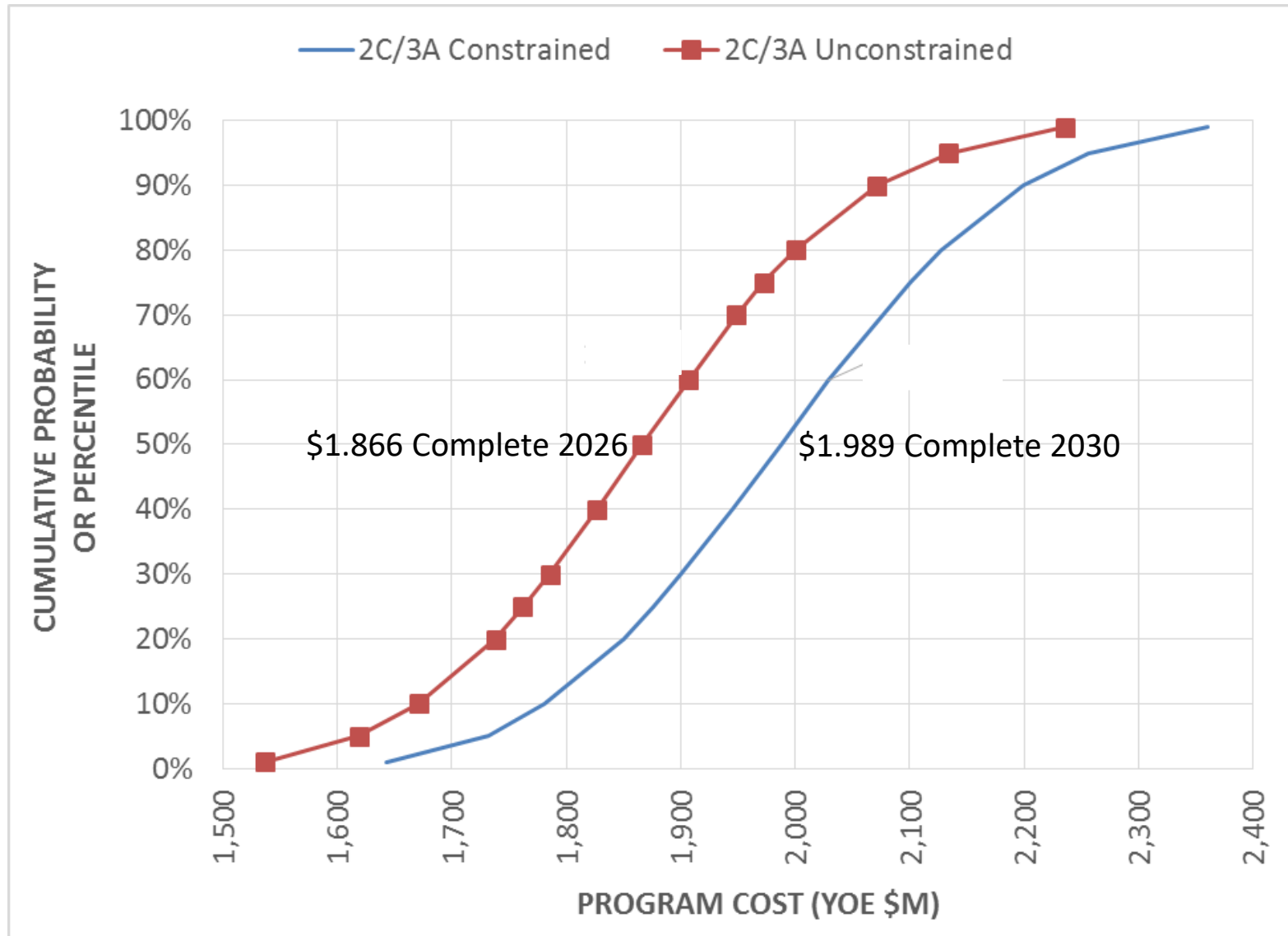
Connecting WA

Local Funding

Toll Funding

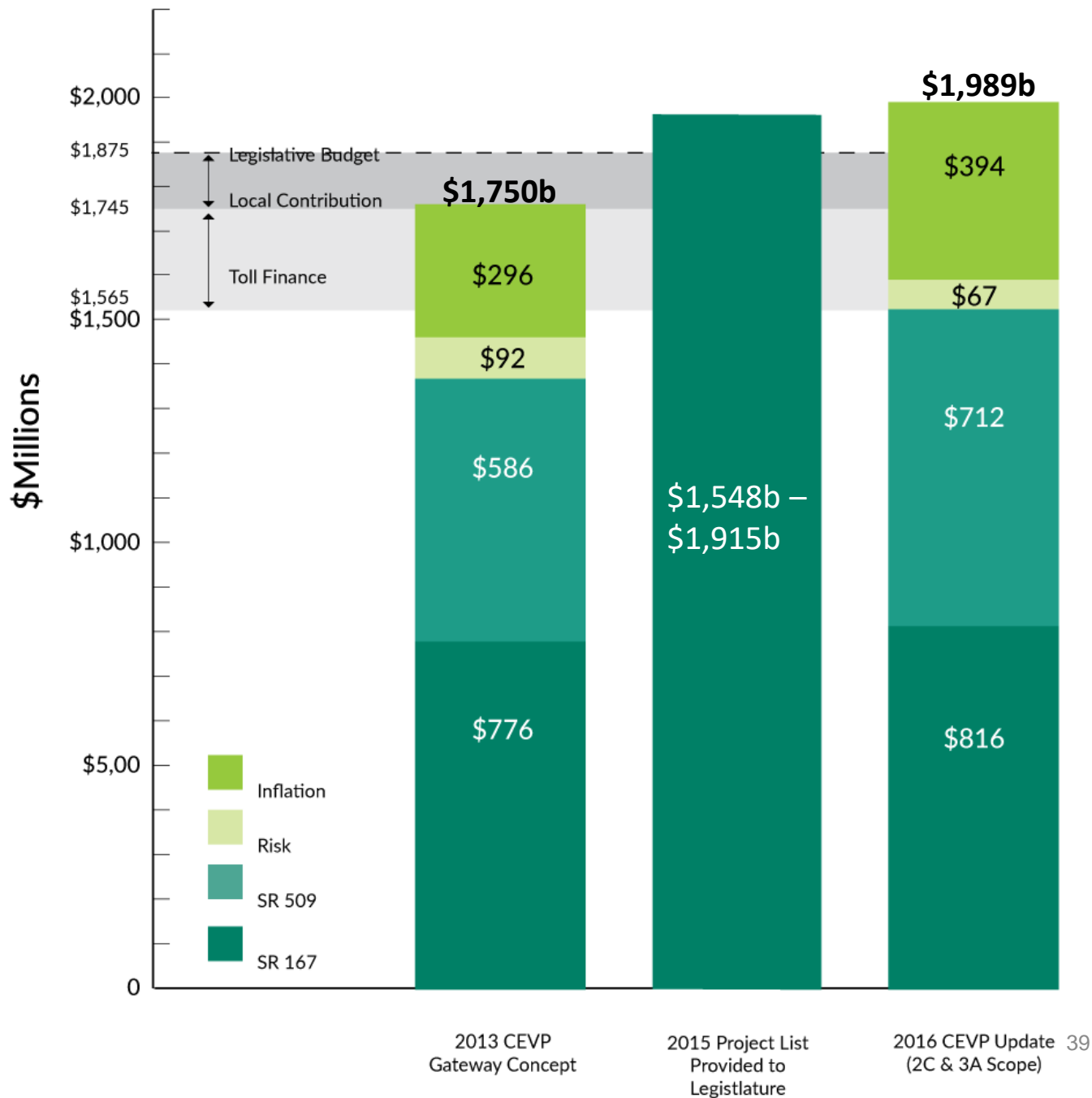


Program Cost Comparison: Constrained vs. Unconstrained



FASTLANE Grant Update

Cost Review



FASTLANE Grant Application

- New Federal grant program focused on freight projects
- \$4.5B program through 2020
- \$800M awarded in FFY 2016 to 18 Recipients
(212 applications received totaling almost \$10B)
- \$850M Notice of Funding Opportunity for FFY 2017
announced on Oct 28th, with applications due Dec 15th
- Submitted application on December 15, 2016 for \$114.4 million

FASTLANE Grant Application – Letters of Support

1. Governor Jay Inslee
2. Senator Maria Cantwell
3. Congressman Denny Heck
4. Congressman David Reichert
5. Pierce County Executive Pat McCarthy
6. King County Councilmember Dave Upthegrove
7. City of Tacoma
8. City of Puyallup
9. City of SeaTac
10. City of Fife
11. City of Auburn
12. City of Algona
13. Mayor and Council of the City of Kent
14. City of Burien
15. City of Des Moines
16. City of Sumner
17. State Senator Joe Fain
18. Northwest Seaport Alliance
19. Port of Tacoma
20. Port of Seattle
21. Washington Transportation Commission
22. Freight Mobility Strategic Investment Board
23. Puyallup Tribe of Indians
24. Puget Sound Regional Council
25. South County Area Transportation Board
26. Sound Transit
27. Pierce Transit
28. Kent Chamber of Commerce
29. Puyallup-Sumner Chamber of Commerce
30. Fife Milton Edgewood Chamber of Commerce
31. South Sound Chambers of Commerce Legislative Coalition
32. Washington Public Ports Association
33. Washington Trucking Association
34. Washington State Building & Construction Trades Council
35. International Longshore & Warehouse Union
36. International Brotherhood of Electrical Workers, Local 76
37. United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry
38. Premier Transport
39. Parsons

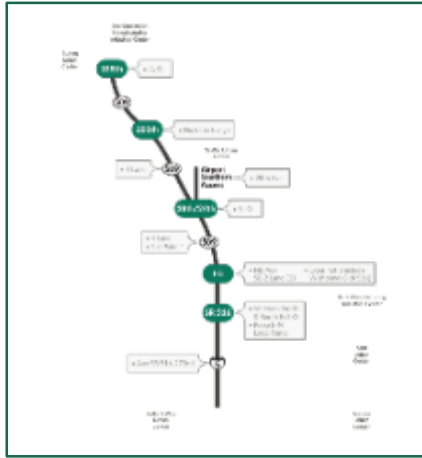
Recommending a *Preliminary* Preferred Scenario

Key Takeaways – Part 1

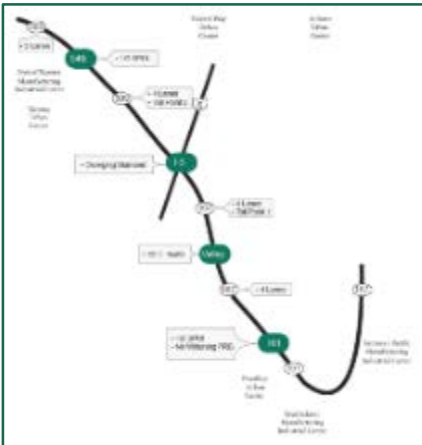
- SR 167 scenario 2C performs well and costs less.
- SR 509 scenario 3A performs well and costs less.
- Scenario 4A for each project performs well but is cost prohibitive.
 - Recommendation from joint Steering Committee was to remove 4A from further analysis.

Gateway Phasing

PHASE 1 (to 2031)



SR 509: 3A
\$923m



SR 167: 2C
\$1,065m

Connect WA
\$1,565m

Toll
\$180m

Local
\$130m

FASTLANE
\$114m

PHASE 2 (future)

Local Access

- Meridian Interchange (west half)
- 188th Interchange (south half)
- 200th Interchange
- Valley Interchange (east half)

I-5

- SR 167 – SR 18 NB auxiliary lane
- 272nd – SR 516 NB auxiliary lane
- SR 516 – SR 509 NB collector/distributor lanes

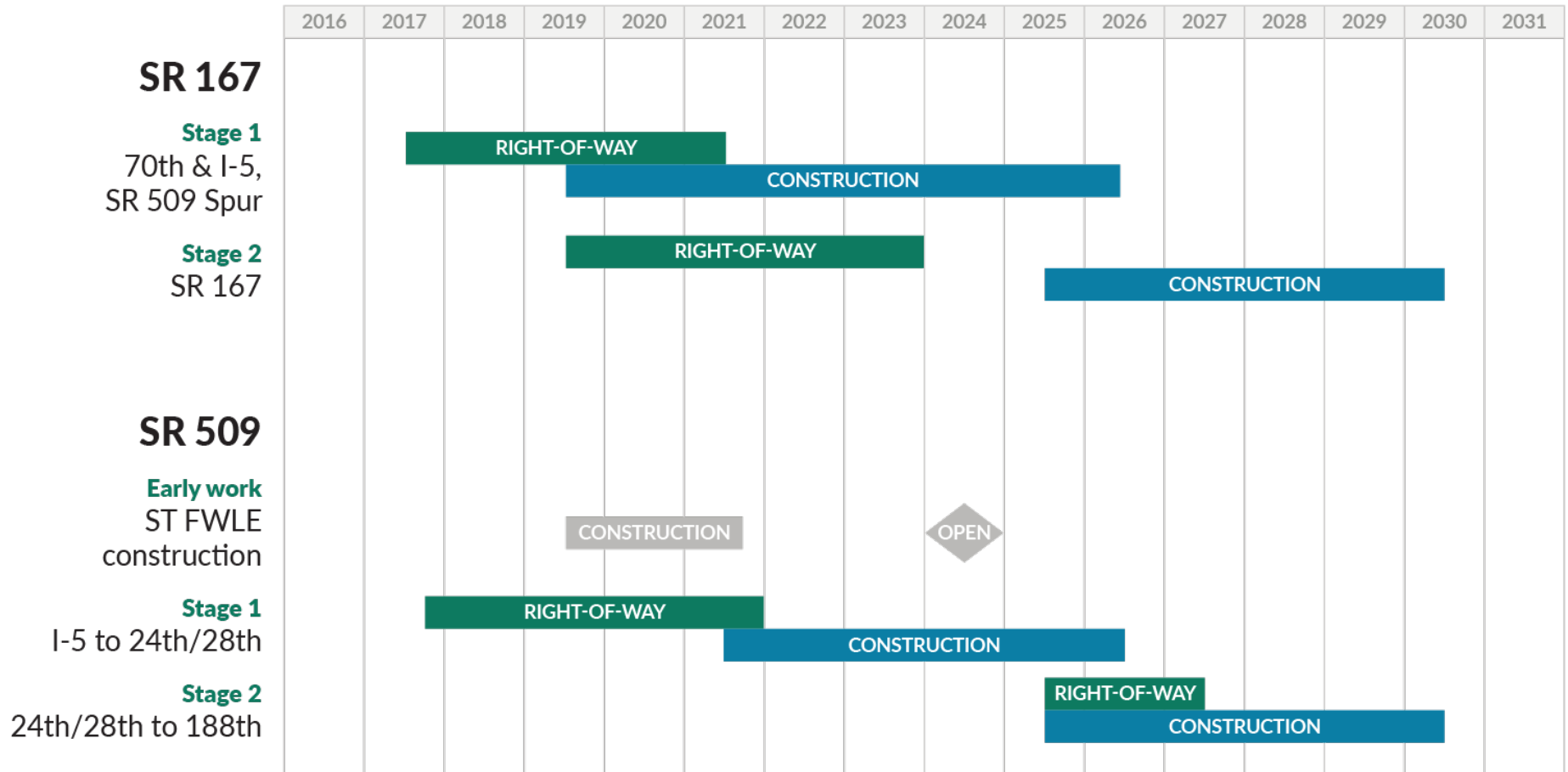
HOV

- SR 509 HOV (fifth and sixth lanes)
- SR 509 HOV Direct Access Ramps
- SR 167 HOV (fifth and sixth lanes)
- SR 167 HOV Direct Access Ramps

Forward Compatibility (features that could be constructed in Phase 1 that are needed in Phase 2)

- SR 509
- Sea-Tac Airport South Access Expressway
- I-5
- SR 167

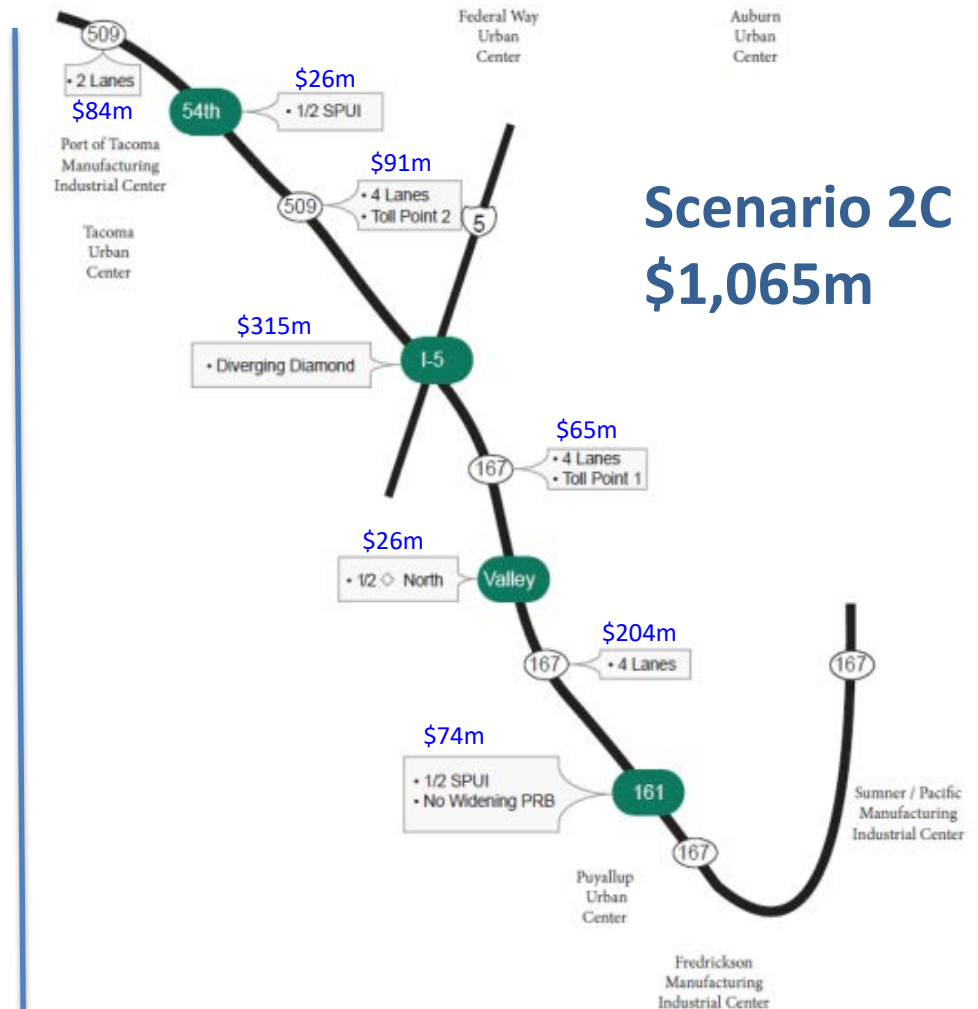
Preliminary Gateway Construction Staging within Phase 1



SR 167: Prioritizing Additional Elements that Require Additional Funding

Prioritizing Additional Elements	Added Cost \$ (millions)
Meridian	\$78
• Ramps (west half)	\$21
• Puyallup River Bridge widening	\$39
• VALE connection	\$18
Valley Interchange (east half)	\$47
SR 167 - SR 18 NB auxiliary lane*	\$120
Forward Compatibility (SR 167 mainline structure for Vale Connection)	\$14

*Morning traffic operations may drive need

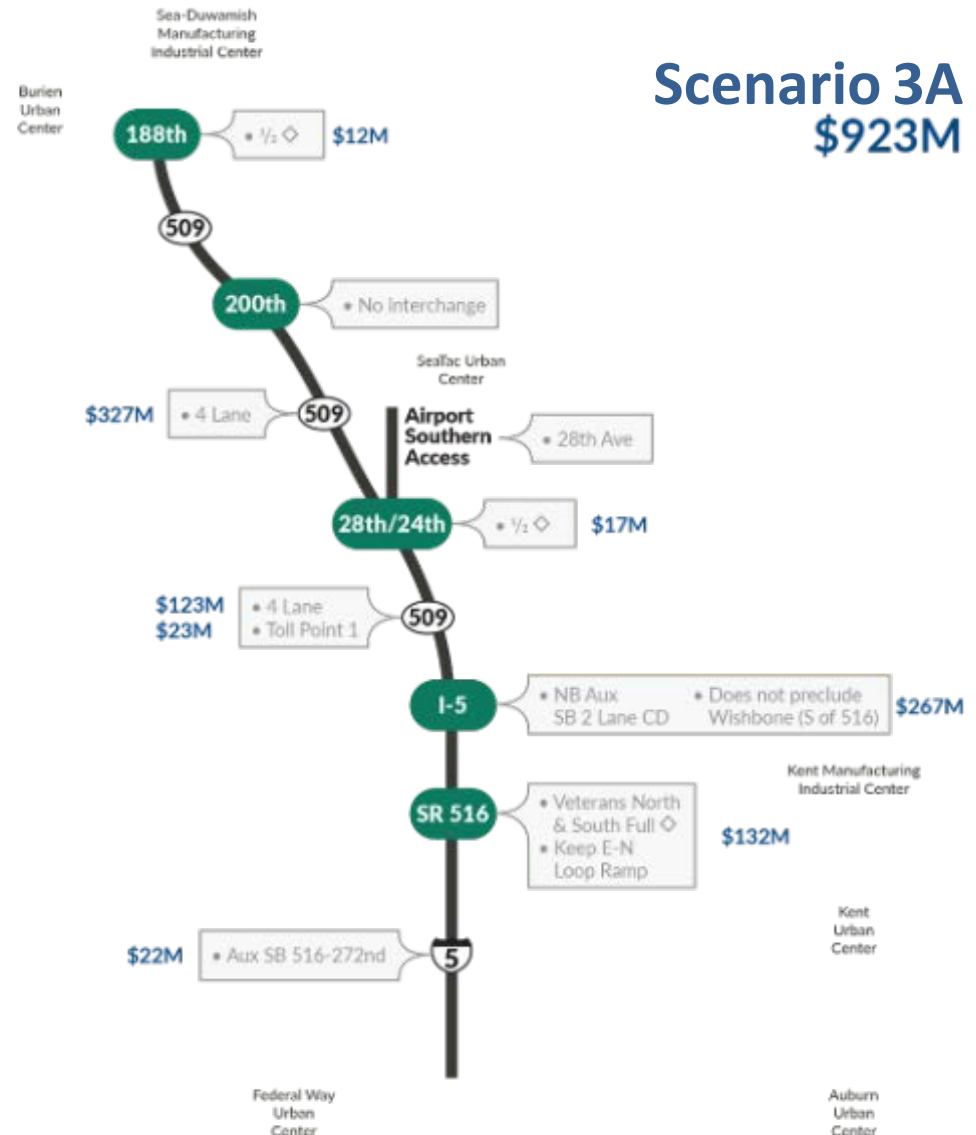


SR 509: Prioritizing Additional Elements that Require Additional Funding

Prioritizing Additional Elements	Added Cost \$ (millions)
188 th interchange (south half)	\$55
200 th interchange	\$25
I-5	
• 272 nd – SR 516 auxiliary lane*	\$33
• SR 516 – SR 509 NB 2 lane collector/distributor*	\$50
Forward Compatibility Elements	
• SR 509	\$3m
• South Access Expressway	\$11m
• I-5	\$12m

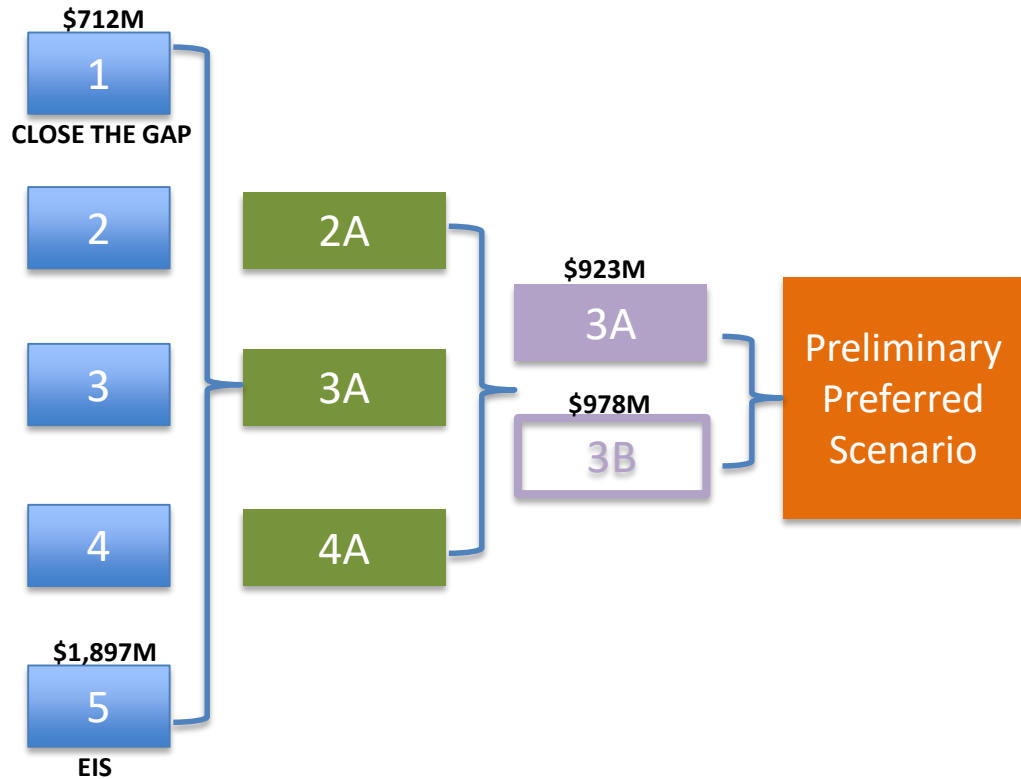
*Morning traffic operations may drive need

Scenario 3A
\$923M

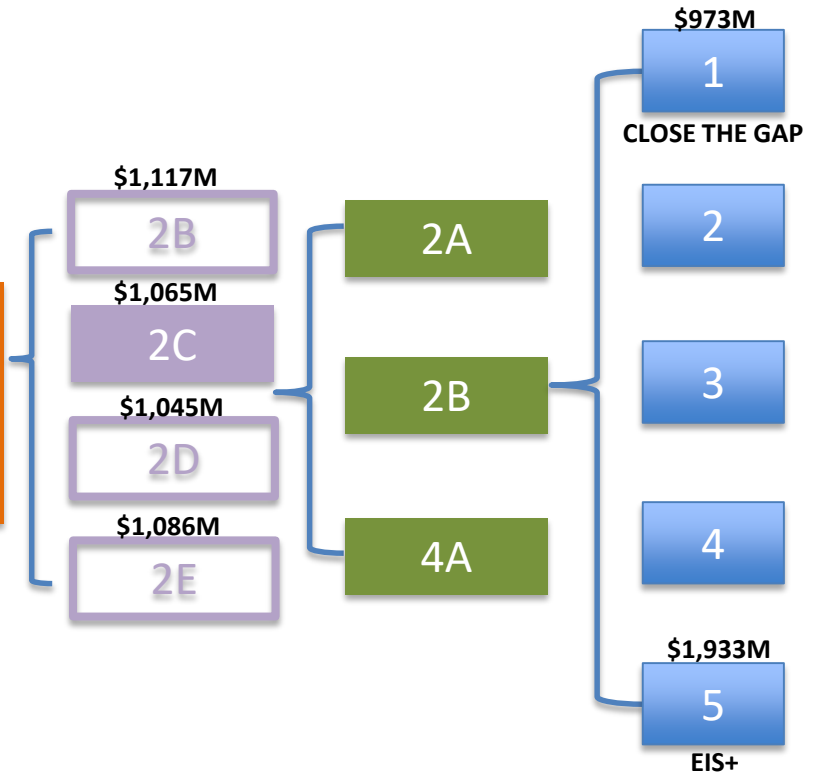


Scenario Refinement Process

SR 509 Process



SR 167 Process



SR 167 Scenario: 2B/2C/2D/2E Comparison

Legend:

Scenario 2B (\$1,117M)

Scenario 2C (\$1,065M)

Scenario 2D (\$1,045M)

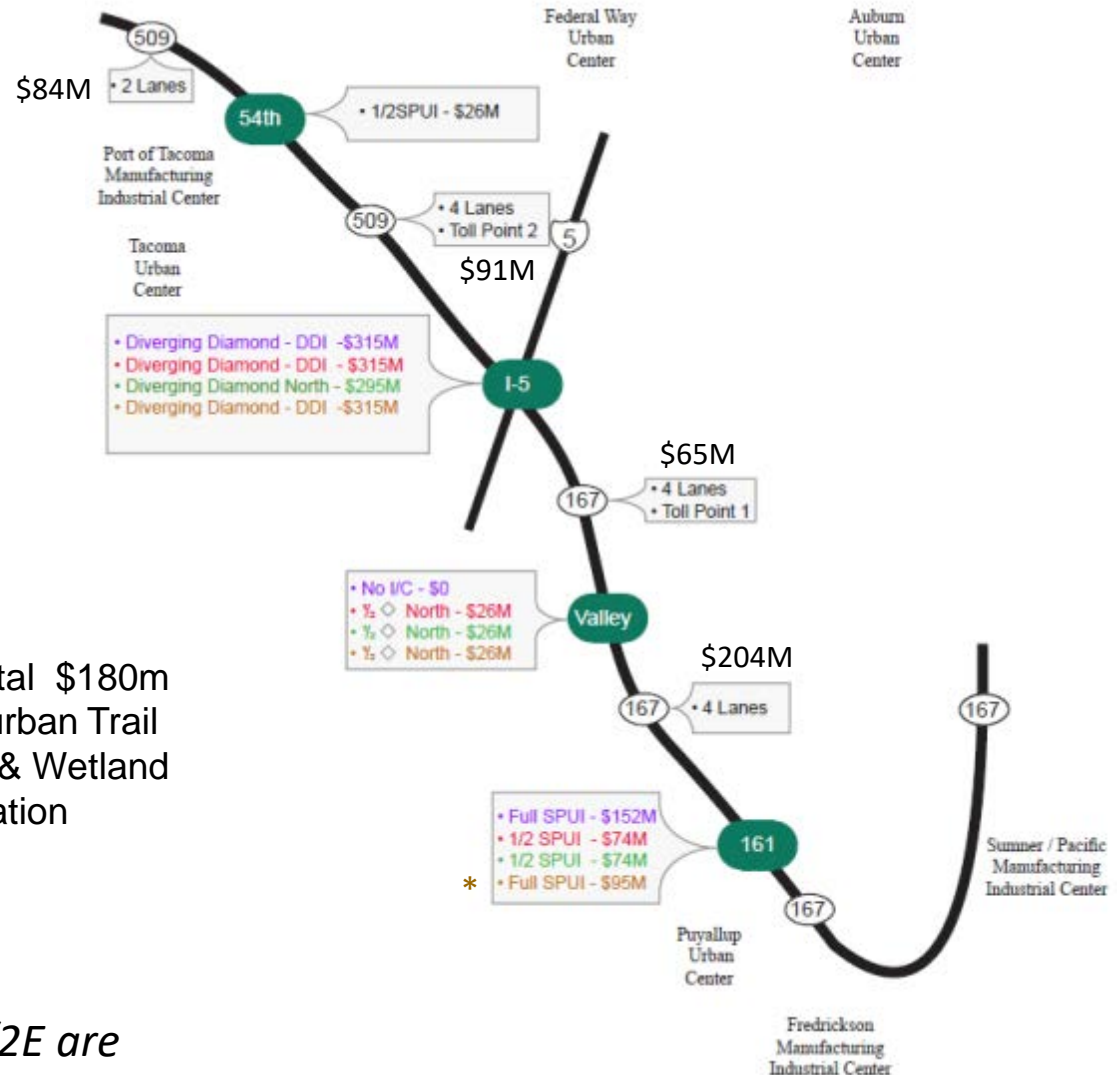
Scenario 2E (\$1,086M)

Shared Component

- Other Items Total \$180m
- Interurban Trail
 - RRP & Wetland Mitigation

*No Puyallup River Bridge Widening
No VALE Connection Work

*Scenario Totals for 2B/2C/2D/2E are
based on Scenario 2C 2016 CEVP results*



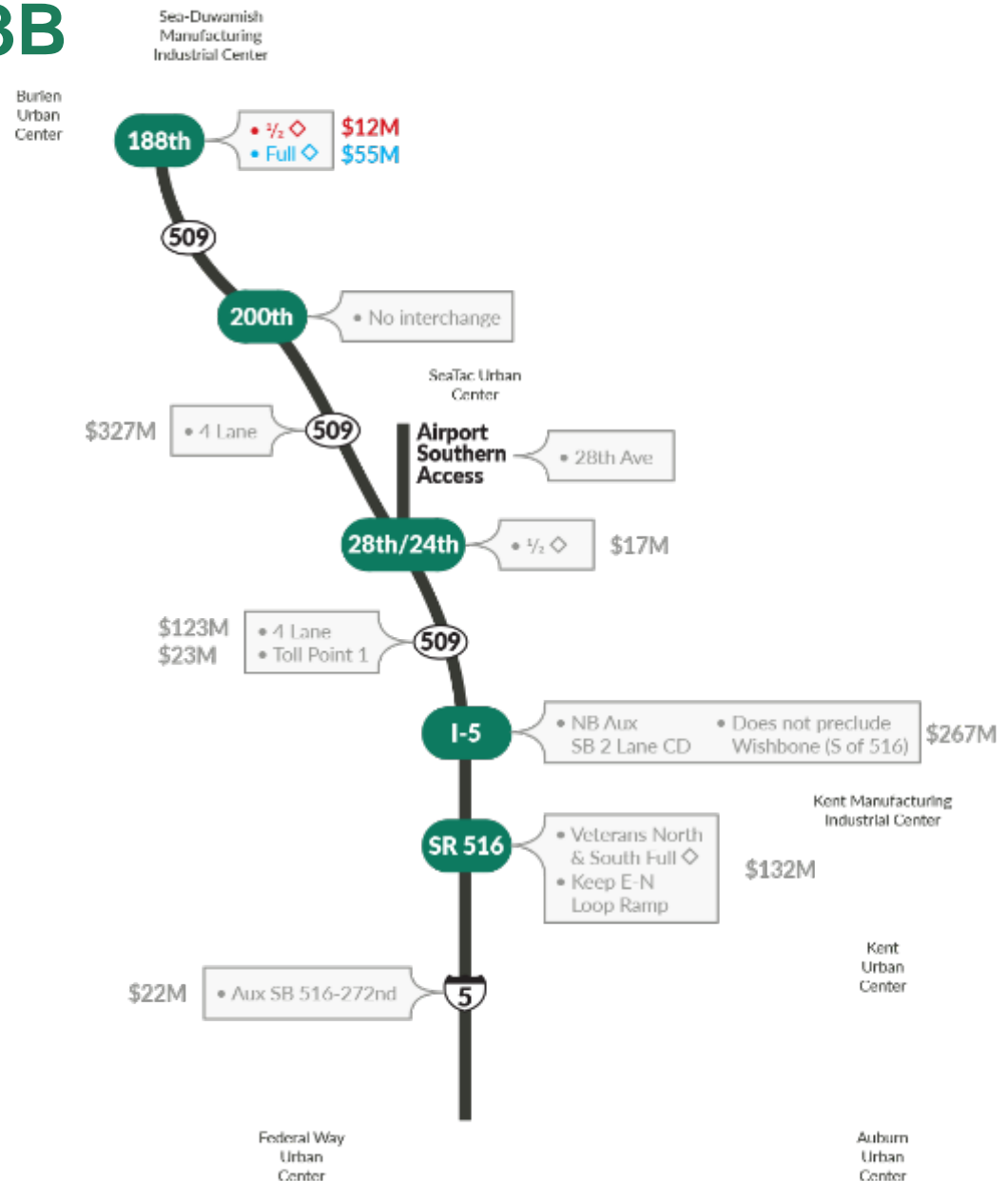
SR 509: Scenario 3A/3B

Legend

Scenario 3A(\$923M)

Scenario 3B (\$978M)

Shared Component

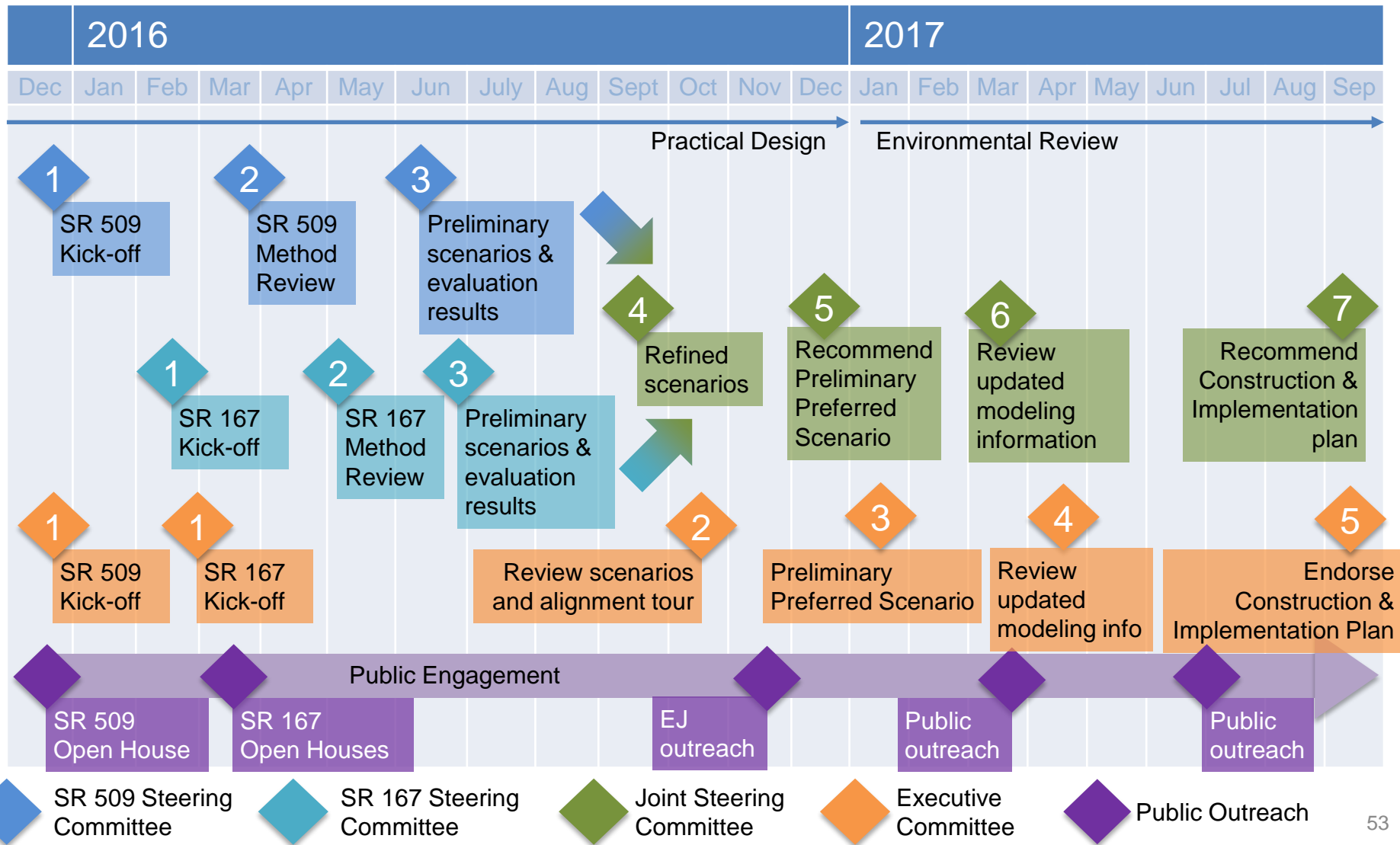


Key Takeaways – Part 2

- Our recommendation is to move 2C and 3A forward as our preliminary preferred scenario into environmental review.
- In April, we will have more information pertaining to traffic for:
 - Meridian (west half) with Valley (west half)
 - 188th (south half)
 - I-5 Northbound SR 167 to SR 18
 - I-5 Northbound 272nd to SR 509
- In April, we should also have more information pertaining to the FASTLANE grant.

Discussion

Program Schedule to Construction and Implementation Plan



More information:

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